

## CLAIMS

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HP

1. An electronic device formed on a chip of semiconductor material (9) comprising:

a substrate having a first type of conductivity and a plurality of surfaces, one of whose surfaces is a bottom surface of the chip,

a layer having a second type of conductivity formed on the substrate and having a surface which is a top surface of the chip,

at least one first region having the first type of conductivity, that extends into the layer from the top surface,

a termination structure comprising:

a first termination region having the first type of conductivity, that extends into the layer from the top surface and is shaped in such a way that it surrounds the at least one first region,

a first electrode in contact with the first termination region,

a second electrode in contact with the layer on the top surface, shaped in the form of a frame close to the edge of the chip,

a third electrode in contact with the bottom surface of the chip and connected electrically to the second electrode,

Ind. A<sup>1</sup> > a fourth electrode in contact with the at least one first region and connected electrically to the first electrode, *and*

a fifth electrode in contact with the layer on the top surface along a path that extends substantially parallel to at least part of an edge of the first termination region and connected electrically to the second electrode, •

~~a second termination region having the first type of conductivity, which extends into the layer from the front surface, and shaped in the form of a frame surrounding the fifth electrode, and~~

~~a sixth electrode in contact with the second termination region and connected electrically to the first electrode.~~

2. The device of claim 1 wherein the each of the first and the second termination regions comprises a low-concentration surface part and a high-concentration deep part.

3. The device of claim 2 wherein the low-concentration surface parts of the first and the second termination regions are combined in a single region and wherein the termination structure comprises a region having the second type of conductivity at high concentration that extends into the surface parts common to the first and the second termination regions from the portion of the front surface of the chip with which the fifth electrode is in contact.

4. The device of claim 1 wherein the first and the fourth electrodes comprise a single metallic element.

5. The device of claim 1 in which the path along which the fifth electrode extends is shaped in the form of a frame that encloses the at least one first region.

6. The device of claim 4 wherein the metallic element and the fifth electrode are interdigitated.

7. The device of the claim 1 wherein the chip of semiconductor material comprises a buried layer containing doping species that reduce the lifetime of the charge carriers.

8. The device of claim 7 wherein the doping species comprise helium atoms.